

Construction of satisfaction degree model of physical education quality based on Analytic Hierarchy Process

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Abstract: In order to improve the evaluation level of physical education quality satisfaction, and promote the deepening construction of physical education teaching reform in colleges and universities, the model of physical education quality satisfaction based on analytic hierarchy process (AHP) is constructed. A satisfaction model of physical education quality based on AHP is proposed. The statistical model of the satisfaction degree of physical education quality was constructed by using the statistical analysis method, and the information distribution model of the satisfaction degree of physical education quality was designed by combining the normal distribution model, and the balanced distribution model of the satisfaction degree of physical education quality was established. The quantitative characteristics of the satisfaction degree of physical education quality were constructed, and the linear prediction and dynamic programming of the satisfaction degree of the quality of physical education were carried out by combining the empirical mode decomposition and the association feature mining method. The AHP was used to predict and evaluate the satisfaction degree of physical education quality. The simulation results show that the method has better accuracy, higher evaluation quality and better confidence level, which can effectively promote the improvement of physical education quality and improve the satisfaction degree of physical education quality.

1. Introduction

The evaluation of physical education teaching quality is an important link in the school physical education work, which directly affects the quality of our training talents. At present, the comprehensive evaluation of school physical education has been studied in depth, with scientific, objective and meticulous evaluation regulations, statistical analysis and periodic evaluation methods for the quantitative evaluation of physical education teaching quality. In the evaluation of the satisfaction degree of physical education teaching quality, various colleges and universities have formulated relevant regulations and regulations, but there is still a lack of comprehensive and unified research on teachers' teaching quality evaluation^[1]. From the current situation of physical education in our country, there are many sports training items. The present physical education teaching needs to follow a variety of teaching steps such as establishing teaching objectives, formulating teaching tasks, using teaching methods and receiving teaching feedback, which is similar to the content required by sports training, but there are also differences between them. Such as in physical education, with a small number of competitive sports training. It is necessary to study the satisfaction evaluation model of physical education teaching quality. According to the students' physical and mental characteristics, we should arrange those that can develop students' physical and mental quality, which is helpful to improve the students' basic physical activity ability. It is beneficial to promote sports culture to stimulate students' competitive consciousness, to satisfy their interest in sports and to cultivate unity and friendship. Through the satisfaction evaluation of physical education teaching quality, the scientific teaching method can be used reasonably, so that

students can experience sports skills and participate in sports fun, obtain successful satisfaction, guide students to strengthen their sports consciousness and form the habit of consciously exercising. To achieve the goal of lifelong physical education, it has great significance to study the evaluation model of physical education quality satisfaction^[2].

The teaching quality and satisfaction level of PE teachers play an important role in the teaching of physical education. It is an effective measure to improve the quality and development of physical education by establishing the evaluation system for teaching quality of PE teachers. It is an effective measure to promote the quality and development of physical education. At the same time, it is necessary to evaluate the quality of the teachers^[3]. It is necessary to evaluate the quality of teaching. The evaluation should be made from the actual situation, the scientific evaluation indexes and methods should be formulated to stimulate the teachers' enthusiasm, improve the teaching quality, and provide an objective basis for the promotion, assessment and evaluation. There are teachers and students, and there are differences in the understanding of each index because of their different positions^[4]. Therefore, we strive to make the items with strong measurability, easy operation, and explain the various indicators. The evaluation index system can guide the development of the teaching direction in the direction. The targets should be both focused and full, we should increase the weight of the major factors that affect the quality of teaching^[5-7].

In order to improve the quality of physical education teaching and deepen the reform of physical education, this paper puts forward a satisfaction model of physical education quality based on analytic hierarchy process (AHP). The statistical model of satisfaction degree of physical education quality was constructed by statistical analysis method, and the information distribution model of satisfaction degree of physical education quality was designed by combining normal distribution model. The AHP was used to predict and evaluate the satisfaction degree of physical education quality. Finally, the performance test was carried out through the simulation experiment, which shows the superiority of this method in improving the satisfaction evaluation ability of physical education teaching quality.

2. Constraint parameter model of physical education quality satisfaction evaluation and the statistical analysis model

2.1. Constraint parameter model of physical education quality satisfaction evaluation

Generally speaking, the factors closely related to the quality of teaching are the organizational structure of teaching and the relationship between teachers and students. Their relationship is illustrated in Figure 1.

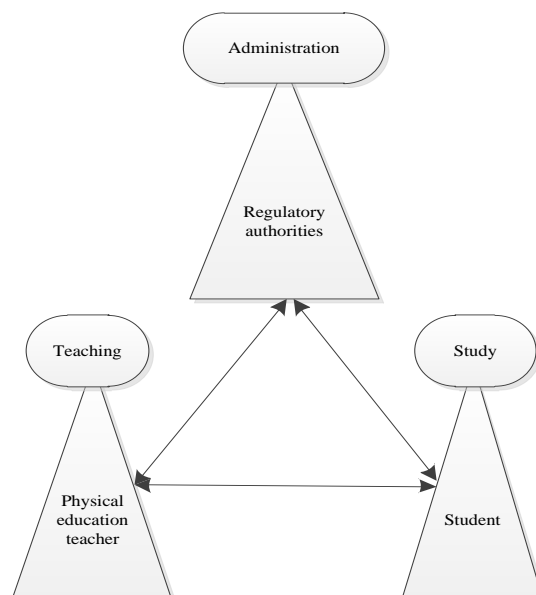


Figure 1. Satisfaction relationship model of university physical education teaching quality

Based on the concept of “satisfaction” theory and on the basis of the previous research results of the scholars and combining the practice of college physical education, a set of evaluation index system for the quality of college physical education is constructed, which takes the supervision department, physical education teachers and students as the core. The content of the system mainly includes the “management” of the regulatory department, the “teaching” of the physical education teachers, the students' “learning”, and the satisfaction of the three subjective self-evaluation and mutual evaluation.

For teachers, teaching skills and teaching effects are the evaluation indexes of education quality, which can usually be summarized as teaching attitude, content, teaching method, effect, and the professional level and scientific research level of PE teachers. According to the principles determined by the evaluation index system, 5 indexes, such as teaching content, teaching method, scientific research level, teaching attitude and teaching effect, are selected as the indexes of teachers' teaching quality evaluation.

2.2. Statistical analysis model of physical education quality satisfaction evaluation

The statistical analysis method is used to construct the statistical model of sports education quality satisfaction, and the information distribution model of sports education quality satisfaction is designed with the normal distribution model. the data management model of the quality satisfaction evaluation of sports education quality satisfaction evaluation database is constructed, and the analysis of the data scattering characteristics is carried out to realize the statistical analysis of the satisfaction evaluation of the quality of physical education.

3. Construction and optimization of satisfaction model of physical education quality

This paper puts forward a satisfaction model of physical education quality based on analytic hierarchy process. AHP is a qualitative and quantitative combined, systematic, hierarchical analysis method. It is actually not a method specifically used for satisfaction evaluation, but a decision analysis technology. The basis of its calculation is The degree of importance of the indicator is calculated by a discriminant matrix scored by experts, and the elements that are always related to the decision are decomposed into the levels of objectives, criteria, and programs, and qualitative and quantitative analysis methods are used on this basis. Analytic Hierarchy Process (AHP) can not only ensure the system's systemicness and rationality, but also enable decision-makers to make full use of their experience and judgment ability. In general, it is a hierarchical and structured decision-making method for analyzing the multi-index system of a project. It models and quantifies the decision-making process of decision-makers for complex systems. Applying this method, the decision-maker can decompose the complex problem into several levels and several factors. Through simple comparison and calculation among various factors, the weights of different schemes can be obtained to provide the basis for the selection of the best plan.

In summary, AHP is used to predict and evaluate the satisfaction degree of physical education quality, and the satisfaction evaluation level of physical education quality is improved.

4. Simulation experiment and performance analysis

In order to test the application performance of this method in the accurate evaluation of physical education satisfaction, the simulation experiment is carried out. The hardware CPU of the simulation is Intel Core i7-2600, which is simulated by Matlab. The frequency of characteristic sampling is 132 KHz, the scale of statistical data is 2000, the scale of training set is 100, the time delay of sampling characteristic sample is 1.32, and the level of satisfaction evaluation of physical education quality is also discussed. The number of times of learning iteration is 1000 and the step of iteration is 20. According to the above simulation environment and parameter setting, the statistical analysis and evaluation of the satisfaction degree of physical education quality are carried out.

5. Conclusions

In order to improve the quality of physical education teaching, the model of physical education quality satisfaction based on AHP is constructed. A satisfaction model of physical education quality based on AHP is proposed. The statistical model of the satisfaction degree of physical education quality was constructed by using the statistical analysis method, and the information distribution model of the satisfaction degree of physical education quality was designed by combining the normal distribution model, and the balanced distribution model of the satisfaction degree of physical education quality was established. The quantitative characteristics of the satisfaction degree of physical education quality were constructed, and the linear prediction and dynamic programming of the satisfaction degree of the quality of physical education were carried out by combining the empirical mode decomposition and the association feature mining method. The AHP was used to predict and evaluate the satisfaction degree of physical education quality. The simulation results show that the method has better accuracy, higher evaluation quality, better confidence level, and less time, which can effectively promote the improvement of physical education quality and improve the satisfaction degree of physical education quality.

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